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ABSTRACT

Past research shows the imperative nature of students having a high knowledge of vocabulary, particularly as it relates to their level of reading comprehension. This is especially true in the areas of science and social studies because of the nature of the subjects and their corresponding texts. Students' ability to retain and recall vocabulary knowledge is, therefore, also critical. Educators use many different strategies and methods as means to these ends. One game frequently used for a review of information and to help students retain information is a modified version of the game BINGO. The researcher asked the question, therefore, whether or not this strategy is more effective than a simple "fill in the blank" worksheet review. In this study, the researcher compared the test scores of two different groups of fourth grade students. Both groups studied social studies vocabulary words in the same manner, the difference being that at set times throughout the study, one group reviewed the words using an independent worksheet review and the other used a modified BINGO game review. The hypothesis was that students participating in the modified BINGO game review of the vocabulary words would show no difference in test scores, at the .05 level of significance, when compared to those students who participated in the worksheet review. Both the control (worksheet) and experimental (BINGO) groups studied the same vocabulary words throughout the four weeks of the study. The students learned 4 each day (16 for each week) and then reviewed those 16 words on the fifth day of each week. After two weeks, a teacher-made test was given to both groups and the groups were then switched, each receiving the opposite treatment. Another test was given on the second set of 32 words at the end of the second half of the study. When the results of the test scores were analyzed using a paired t-test it was found that although the experimental group (the group using the BINGO game review) did achieve a higher average score, the research was not statistically significant based on the .05 level of significance. Therefore, the researcher retained the original hypothesis. Appendixes contain permission letters, a sample review worksheet, and a sample vocabulary test. (Contains 24 references, 1 table, and 3 figures.) (Author/RS)

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A COMPARISON OF FOURTH GRADE STUDENTS' TESTING SCORES BETWEEN AN INDEPENDENT WORKSHEET REVIEW AND A BINGO GAME REVIEW

ED 479 379

An Action Research Project

Presented to

the Department of Teacher Education

of Johnson Bible College

In Partial Fulfillment

of the Requirement for the Degree

Master of Arts in

Holistic Education

by

Jenney Renee Klepper

July 2003

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ABSTRACT

Past research shows the imperative nature of students having a high knowledge of vocabulary, particularly as it relates to their level of reading comprehension. This is especially true in the areas of science and social studies because of the nature of the subjects and their corresponding texts. Students' ability to retain and recall vocabulary knowledge is therefore also critical. Educators use many different strategies and methods as means to these ends. One game frequently used for a review of information and to help students retain information is a modified version of the game BINGO. The researcher asked the question, therefore, whether or not this strategy is more effective than a simple 'fill in the blank' worksheet review.

In this study, the researcher compared the test scores of two different groups of fourth grade students. Both groups studied social studies vocabulary words in the same manner, the difference being that at set times throughout the study, one group reviewed the words using an independent worksheet review and the other used a modified BINGO game review. The hypothesis was that students participating in the modified BINGO game review of the vocabulary words would show no difference in test scores, at the .05 level of significance, when compared to those students who participated in the worksheet review.

Both the control (worksheet) and experimental (BINGO) groups studied the same vocabulary words throughout the four weeks of the study. The students learned four each day (sixteen for each week) and then reviewed those sixteen words on the fifth day of each week. After two weeks, a teacher-made test was given to both groups and the

groups were then switched, each receiving the opposite treatment. Another test was given on the second set of thirty-two words at the end of the second half of the study.

When the results of the test scores were analyzed using a paired *t*-test, it was found that although the experimental group (the group using the BINGO game review) did achieve a higher average score, the research was not statistically significant based on the .05 level of significance. Therefore, the researcher retained the original hypothesis.

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APPROVAL PAGE

This action research project by Jenney Klepper is accepted in its present form by the Department of Teacher Education at Johnson Bible College as satisfying the action research project requirements for the degree Master of Arts in Holistic Education.

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Chapter 1

INTRODUCTION

Significance of the Problem

This study of fourth grade students concerns reviewing vocabulary words taught in the social studies curriculum. A great deal of research has been done regarding vocabulary instruction and retention (Avery, 1995; Mosher, 1999; Smith, 1997; Venetis, 1999). Also, research shows that vocabulary knowledge in the content area of social studies is vital for reading comprehension (Mosher, 1999; Smith, 1997; Harmon, et. al., 2000).

Statement of the Problem

Educators wish for students to retain what they have been taught. An ever-expanding vocabulary is deemed essential in education, particularly when students are expected to gain information simply from reading their textbooks. In a supplement to the textbooks and teacher's aides published by *Harcourt Brace Social Studies*, a modified version of the game BINGO is suggested as a review game for vocabulary. Varying versions of this game are frequently used in the education system. However, does it help raise students' scores specifically in the area of vocabulary in a fourth grade social studies unit? The purpose of this study was to test the influence of using this game in a vocabulary review as compared to using a simple worksheet.

Definition of Terms

Modified BINGO Game Board: In the context of this study, this refers to a 4x4 box grid (see below). Each of the sixteen boxes contained one of the sixteen words

studied that week. The words were randomly mixed up on each of the grids; therefore each student had a game board containing all the same words but placed in different boxes. There was not a 'Free' space. (See Figure 1.)

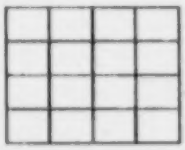

FIGURE 1

Sample Modified BINGO Game Board

Modified BINGO Game Review: In the context of this study, this refers to the actual review game played with the class as a whole once each student received a game board and small game pieces or 'chips' for covering the boxes. The researcher read a sentence that used the vocabulary word in context while saying "blank" in place of the vocabulary word. Each sentence was read two times. The students listened and independently decided which word on the game board fit the context of the sentence. They then placed a chip over that word. The first student to have four chips in a row vertically, diagonally, or horizontally and say, "BINGO" was asked to read aloud the four words in a row on his or her game board. The researcher checked to see if the sentences containing those words had in fact been read aloud. If the student was correct, then he or she received a small prize: ten 'tickets' (a reward system already established in their classrooms). The class then cleared their game boards and play began again.

Limitations of the Study

There were thirty-five students who fully completed the study. The small size limits the conclusions that can be drawn about the entire population of fourth grade students learning social studies vocabulary words.

There was only some racial diversity among the sample, with a majority of white/Caucasian students, which limits the application of the research results.

Assumptions

The researcher assumed both of the groups, while both functioning at different times as the control and experimental groups, remained indifferent to the change.

The researcher assumed the instruction was free of bias, and the researcher didn't exhibit different levels of enthusiasm or interest in the two different groups.

Hypothesis

Students participating in the modified BINGO game review of the vocabulary words will show no difference in test scores, at the .05 level of significance, when compared to those students participating in the worksheet review.

Chapter 2

REVIEW OF RELATED LITERATURE

Vocabulary knowledge is crucial to reading comprehension (Mosher, p. 9). Students struggling in reading comprehension will not only have difficulty in reading and language arts but in all other areas of the curriculum as well, including science and social studies. There are a variety of approaches to teaching vocabulary in the classroom and a great deal of instructional aid available in current textbooks (Harmon, Hedrick, & Fox, p. 253-255). One activity in particular – the game BINGO – is used for many different purposes. The learning focus varies from math facts to science vocabulary to math sums and quotients. Also varying is the age of the students; this game is used all the way from kindergarten up through high school (Rule, p. 3-4). One particular aspect of the education field that sees plenty of BINGO use is Teaching English to Speakers of Other Languages (TESOL, ESL, or EFL). Here, it is primarily used as an aid in vocabulary learning, pronunciation, and sound identification. Its advocates claim it enhances education though it, of course, never forms the core of a curriculum. So this researcher poses the question, "Does this game truly have educational value?"

In order to form a basis for researching the effectiveness of this game used in vocabulary instruction specific to social studies, this researcher found it useful to review current research in a number of related areas, including: vocabulary instruction, student retention and recall of material, memory, games, teaching social studies, and student motivation and interest.

Vocabulary Instruction

Vocabulary knowledge is essential for reading comprehension. The link between vocabulary and comprehension has been well established (a. Smith, p. 3). Therefore, the implications for vocabulary instruction go beyond the reading and language arts curriculums. Rather, it belongs in all areas of the curriculum, including science and social studies, in order to improve student learning (Smith, p. 3).

In social studies and science curriculums, the textbook is the primary resource for instruction and often contains difficult words (Harmon, Hedrick, & Fox, p. 253). Mosher, therefore, contends, "Not focusing on vocabulary instruction as a part of the reading process does a disservice to the students in all curriculum areas" (p. 10). In her study of 23 fourth grade students, the data collected showed problems of poor reading comprehension and low knowledge of vocabulary. Mosher focused on direct vocabulary instruction (as opposed to indirectly learning vocabulary in context); the teachers engaged the students in directed vocabulary learning activities daily that went beyond simple definitions. The results of this study showed a significant growth in the students' vocabulary. It was found that focusing on a certain list of words each week really helped students learn those words (Mosher, p. 31-36). She states that "leaving vocabulary to chance or assuming that students will learn on their own is quite risky" (Mosher, p. 10).

While Mosher's study showed a significant difference in the two vocabulary teaching strategies (isolated word list vs. in a literature context), a study conducted comparing the two in a high school Freshman English course showed no significant difference in the gains of the two samples. Both methods appeared to bring nearly the

same amount of improvement from pre-test to post-test (Venetis, p. 12-13). Szymborski (Smith, p. 3) also discovered a lack of significant difference in a similar study of fourth grade students.

In a study involving more teaching strategies, Avery reports a significant increase in the vocabulary knowledge after a multi-approach in vocabulary instruction. In citing a 1986 study by Stahl, Avery contends that giving many exposures to the words beyond looking up definitions in the dictionary significantly improves vocabulary knowledge and, as a result, reading comprehension. Some of these various engagements with the words include methods appealing to a variety of learning styles, contextual use of vocabulary, and building upon prior knowledge (b. Avery, p. 20).

Despite the conflicting research already mentioned, there is substantial research that supports teaching vocabulary contextually while giving the students opportunities to make connections. Harmon, Hedrick, and Fox analyzed the vocabulary instruction available in Social Studies textbooks for grades 4-8. Focusing on the key terms that most publishers pull out from the individual lessons, they found that the majority of publishers – including Harcourt Brace – continue to include vocabulary activities that represent the traditional ideas of vocabulary learning in items such as worksheets and matching definitions. They found that the kind of instructional support given did not call for making connections or application of knowledge (Harmon, Hedrick, & Fox, p. 256-257). Tools such as graphic organizers and semantic mapping show students the relationships between words (a. Harmon, Hedrick, & Fox, p. 267).

Retention and Recall of Material, including Memory

According to Perkins, without making connections within the context of the words and actual use of the vocabulary, the degree of vocabulary recall decreases significantly. Most students just forget what they've been taught because they don't really understand what they learned; they weren't asked to constantly retrieve it or use it "actively" (a. Avery, p. 11).

One of educators' main desires for their students is to see retention of the knowledge they have been taught and to integrate that knowledge into what they already know. Students need to be able to remember long-term. The most common of the theories of memory are the information-processing models (c. Meyen, et. al., p. 2-3). The first part of memory is the sensory register. Information comes in via a person's sense organs and is held for only a very short time – 1 to 4 seconds. Unless something is done to cause attention to be on the information for a longer period of time, then the information is quickly lost. Therefore, many theorists believe that the amount of attention given to information plays a key part in moving information from the initial sensory register to short-term memory. Anything that doesn't get attention will disappear from one's memory system (a. Meyen, et. al., p. 3).

In order for the information in the working (short-term) memory to be retained, Woolfolk points out two types of rehearsal: maintenance rehearsal and elaborative rehearsal (c. Meyen, et. al., p. 2-3). Maintenance rehearsal involves simple recitation while the latter involves connecting the information to something already learned. The more that new knowledge is rehearsed in the memory, the more likely it is to be retained

in long-term memory. Meyen advises teachers to engage their students in rehearsal activities; that is, any sort of activity where the new information is repeated again and again (Meyen, et. al., p. 13).

Voss and Wiley divide long-term memory into three categories, one of which is labeled semantic memory. In this portion of long-term memory, factual and general information are stored together organized into connected ideas called schemata. The schemata then help to relate new information to what is already known. What is taught in the classroom must make its way into the long-term memory, be connected with previously acquired knowledge, and then be retrieved when needed (b. Meyen, et. al., p. 5). Meyen gives questions which "are drawn from our current understanding of how the brain works in relation to memory" (Meyen, et. al., p. 6). One of the questions being, what strategies will gain and maintain students' attention? Research points to emotion as a useful tool. When an educator creates emotion, such as in a game format, music, or drama, then the students' attention is most likely to remain with the material and task at hand. Also, using this strategy directly after a lesson increases the chances that the material will be recalled later (c. Meyen, et. al., p. 6-7).

When students cannot later retrieve information from long-term memory it is because it was learned only by rote memorization or because they don't have enough connections with it in order to point them to it. Woolfolk's research calls for repetition and review of information and also for focus on meaning, not memorization (c. Meyen, et. al., p. 15). In opposition to Woolfolk's research, there are other researchers who

believe there isn't enough emphasis on rote memorization, specifically in the area of mathematics (Bielsker, et. al., p. 53).

Rote memorization is a successful tool in the Asian cultures, but it is much less utilized in Western culture. It is typically put under the category of traditional teaching methods, which have been under much scrutiny in past years within education circles. Angelisi's research of teaching spelling in her third grade classroom shows that children in the traditional "drill and write" method had more frustration and negative attitudes. They had nothing to rely on but what was in their memory. Over a three week period, some groups of students were taught in the traditional way: write all words three times, give the definition, use the word in a sentence, and complete all workbook pages independently. Other groups, however, were involved in such activities as flashcards, sentence strips, and spelling games such as spelling BINGO (which is cited as the students' favorite). Angelisi's hopes were to show that teaching students specific spelling strategies such as finding word relationships, connections between letters and sounds, and word patterns would create better spellers than the old-school "drill and write" method. The first groups of students were noted as being frustrated and bored, yet their test results were not significantly lower than the second group's. Test scores were 100% in nearly all the groups except for the two in which they were taught using the drill and write methods in which the scores ranged from 88% to 100%. But beyond the scores, the researcher reports the attitudes and demeanor of the second set as much more positive and engaged than those students in the first groups (Angelisi, p. 10-12). The researcher writes, "the 'drill and write' learning style proved, overall, to be the least

successful in engaging students' attention and memory by the end of the week" (Angelisi, p.13).

Social Studies Instruction

In gaining students' attention and interest, and, thus, their retention of knowledge, George found that using pedagogy that matches learners' multiple intelligences increases fourth grade students' interest in Social Studies (George, Mitofsky, & Peter, p. 28-32). The data collected was evidence that the lack of interest affected academic achievement. Of the 48 students in the study, only nine labeled Social Studies as their favorite subject and only seventeen thought it was interesting and fun. "Students also have problems in social studies because of difficult content. All of these reasons may factor into the lack of interest in social studies and the poor academic performance of students" (George, p. 19).

This research was done in a first grade classroom as well as a fourth grade classroom over a twelve-week period. In the fourth grade class, the students engaged in activities that matched with each of Gardner's seven intelligences. Some examples include: learning the Illinois Song (musical/rhythmic, verbal/linguistic), jeopardy game (visual/spatial, bodily/kinesthetic, intrapersonal), reading Sarah Plain and Tall (verbal/linguistic, intrapersonal), and making Conestoga wagons (visual/spatial, interpersonal, naturalist). To assess, the researcher used content and skills tests, rubrics, teacher observations, surveys, and portfolios. Surveys were given to the students before and after the implementation. At the end, the fourth grade students had a small increase in the highest ranking of the survey, yet the second highest ranking increased

significantly while the two lowest rankings decreased. It was also noted through teacher's observation journals that students showed a noticeable difference in their interest levels, and, at the same time, academic performance seemed to slightly improve.

Games and Student Motivation

In a survey of strategies used by teachers to motivate students to learn, playing games for reviews was third on the list (Hootstein, p. 214). Hootstein, citing previous research as proof, states that the use of games in this context is valuable (a. Hootstein, p. 214 & b. Hootstein, p. 214). Hogle labels an effective educational game as being fun, intrinsically motivating, offering just the right amount of challenge, and successful in improving skills or knowledge (Hogle, p. 5). Some teachers report that they use simulations, games and cooperative learning because activities like these allow for the students' need to be social – students like to talk to their peers. Other strategies meet their needs for affiliation, autonomy, and physical activity. Concerning motivation, however, teachers mention the highest factor in what makes it difficult for them to motivate students to learn is this: insufficient planning time to make the subject more interesting (Hootstein, p. 215).

Research shows that games can serve to motivate and interest students in learning as well as aid in retention of material (a. Hogle, p. 8-10). There is research done on games focusing on retention, however, most is not recent. Retention is noted, however, as one of the benefits of educational games. Often, though some educators sometimes think of this drilling method negatively, putting it in the form of a game is the only way to practice and develop certain cognitive skills that simply need long hours of practice.

Another benefit is supported by Piaget's learning theory because the games provide opportunities for play and imitation (Hogle, p. 10).

In conclusion, questioning the effects of using the game BINGO to learn vocabulary words in social studies content is valid. Knowledge of vocabulary, retention and recall of material, and student motivation are all essential in the process of education. Research continues to point to the use of strategies beyond "drill and write," including games, as being beneficial to student motivation and interest.

Chapter 3

METHODS AND PROCEDURES

Subjects

The subjects were fourth grade students, ten and eleven years old, who came from mostly middle class social status with a few from low-income families. Some of the parents showed a great deal of interest in their child's schooling, while the majority of the parents showed no more than slight interest in their child's life at school. The majority of the teachers at the school came from the upper-middle class, yet the student population was continually growing to include more lower-income families.

The study took place in two separate fourth grade classes with the researcher teaching the social studies classes to both groups. Social studies classes were not grouped according to skill level, so the two groups were heterogeneously mixed together. In all, there were thirty-seven students involved in the study with eighteen in one group and nineteen in the other. However, due to absences on the testing days, only thirty-five scores were included in the data analysis.

Timeline

The study took place from January 6 to February 28 of the 2002-2003 school year. Originally, the study was to be six weeks long and cover a total of forty-eight words at the end of each three-week period. However, due to snow days and other unforeseen circumstances, the study was shortened to four weeks with a total of thirty-two words tested at the end of each two-week period.

Testing

The test was a teacher-made test and was administered at the end of each two-week period during which a total of thirty-two vocabulary words had been taught – sixteen each week. These words were drawn from the textbooks published by *Harcourt Brace Social Studies: Early United States.*

The test consisted of two sections. All thirty-two words taught during the previous two weeks were mixed together, and two groups of sixteen words were randomly selected – one group for each section of the test. (See Figure 2.)

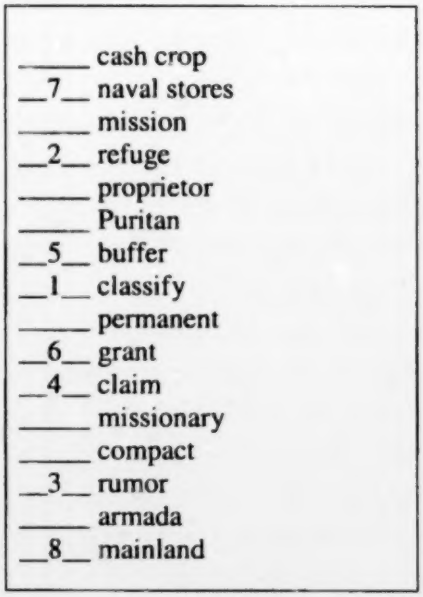

FIGURE 2

Sample Section of Teacher-Made Test

The researcher randomly selected the words by placing thirty-two bits of paper in a basket, each paper having one of the words written on it. One paper was pulled out, the

word was recorded, and the paper was thrown back into the basket with the others. This process was repeated until the desired number of words was reached.

During the testing, the researcher read a sentence aloud to the class, saying, "Blank" in place of the vocabulary word. The student had to look at the words and decide which fit the sentence, placing the number of the question next to the word. Each section consisted of only eight questions, thus resulting in a total of only sixteen words being tested, while still giving the students the choice of all thirty-two. The sixteen words were randomly selected.

Experimental Factor, and Control of the Experimental Factor

This entire study was four weeks long. For two weeks, classroom A served as the control group, while classroom B served as the experimental group. At the end of this period, both groups were given the teacher-made vocabulary test over the thirty-two words. For the two weeks following, the groups were switched and received the opposite treatment. At the end of the second two-week period, both groups were given the second teacher made vocabulary test. (See Figure 3.)

	Week 1	*Week 2*	*Week 3*	*Week 4*
Class A	Control (Worksheet)	Control (Worksheet)/ Test	Experimental/ (BINGO)	Experimental (BINGO) /Test
Class B	Experimental (BINGO)	Experimental (BINGO)/ Test	Control (Worksheet)	Control (Worksheet)/ Test

FIGURE 3

Layout of Study

Both the experimental and control classrooms were taught the vocabulary words throughout the week in the same manner and according to the same schedule. At the end of the week's lessons, the control group received a teacher-made review worksheet, which they had to complete independently. The worksheet consisted of a list or word bank of the sixteen words taught throughout the week and sixteen sentences with a missing word in each. The student had to read the sentences and put the correct words in the correct context. These sentences were the same ones read aloud to the experimental group. Upon completion of the worksheet, the researcher went over the worksheet with the class as a whole, reinforcing the correct answers and answering any questions. The total time given to this was thirty-five minutes.

The experimental group did not receive the review worksheet at the end of the week's lessons. Instead, they played the modified BINGO review game for thirty-five minutes. Upon completion of each round of BINGO, the researcher went over the correct words as the students' answers were checked – reinforcing the correct answers and answering any questions.

Statistical Analysis

The test used was teacher-made as already described. The scores for the control group (a total of 35 scores) were compared with the experimental group (also a total of 35 scores) using a paired *t*-test.

Chapter 4

RESULTS

The results of this study comparing the testing results of two different types of vocabulary review, a modified BINGO game and a worksheet completed individually, showed no significant difference in the scores of the two groups of fourth grade social studies classes. Both groups were taught vocabulary words in the same manner throughout two two-week periods. At the end of each week, the control group completed a worksheet review of vocabulary words independently. The experimental group participated in a modified BINGO game to review the words. After two weeks, both groups were tested on a randomly selected portion of the words using a teacher-made test. The groups were then switched; in the next two weeks, each group received the opposite treatment. The groups were then tested on the next set of words, again using a teacher-made test.

The table below shows a comparison of the post-test mean scores.

TABLE 1

Post-test Comparison of Means for Modified BINGO Review Game and Independent Worksheet Review

Groups	N	Means	Mean Difference	t Stat	t Critical two-tail
Worksheet	35	86.17			
			.857	0.28*	2.03
BINGO	35	87.03			

* Not Significant

A paired *t*-test was used to analyze the data of the student test scores between the two types of reviews. Table 1 illustrates that the control group tested at a mean score of 86.17, which includes both teacher-made tests and all thirty-five students' scores. The experimental group tested with a mean score of 87.03. Though the experimental group did achieve a higher average score, the research was not statistically significant based on the .05 level of significance. Therefore, the researcher retains the original hypothesis as stated in chapter one: Students participating in the modified BINGO game review of the vocabulary words will show no difference in test scores, at the .05 level of significance, when compared to those students participating in the worksheet review.

Chapter 5

SUMMARY, CONCLUSIONS, RECOMMENDATIONS

Summary

This study was conducted over a four-week period within two fourth grade social studies classrooms. This research involved two methods of reviewing for vocabulary words in the social studies curriculum: a modified BINGO game review and an independent worksheet review. Each student had a chance to participate in each type of review.

For the first two weeks, the control group (Class A) and the experimental group (Class B) were taught the same thirty-two vocabulary words in the same manner. At the end of each week however, after learning a set of sixteen of the thirty-two words, Class A completed a worksheet independently. The worksheet consisted of sixteen sentences, which used the words in context with a blank space where the vocabulary word was to be placed. There was a word bank. After having time to complete it independently, the researcher went over the worksheet with the class, providing the correct answers.

Class B, meanwhile, played a modified BINGO game with the sixteen words as opposed to completing a worksheet. The students made their own game boards by filling in the sixteen words in the squares of their choosing. The researcher then read the sentences aloud (the same sentences used in the worksheet), and the students had to decide which word best completed the sentence. The students then covered their choice with a game piece. The first student to say "BINGO!" and have all the correct answers won a small prize. The game boards were then cleared and play began again. Because

there were only sixteen words, the sentences were used repeatedly as the game continued. The total time allotted to both reviews was thirty-five minutes.

At the end of the first two weeks, both groups took the same teacher-made test over a randomly selected portion of the thirty-two total words. The groups were then switched and received the opposite treatment for the following two weeks.

The test scores for the two types of review were analyzed. A small difference was seen between them – students participating in the modified BINGO review scored slightly higher than those students participating in the independent worksheet review. However, the results were not significant at the .05 level of significance, as shown in Table 1.

Conclusions

The study of different methods of review enables educators to better decide how to help their students review information and, thus, score higher on their tests. As shown from the test scores in this experiment, the two types of reviews studied had nearly the same effects. However, the small difference in the test scores points to the modified BINGO game review as being slightly more effective than the worksheet.

Yet there is a possibility that the scores were higher with the BINGO game review because there was more reinforcement of the words in context. Though the same sentences were used for both reviews, the students doing the worksheet only encountered each twice – once when they completed the worksheet individually and once when it was reviewed with the entire class. The students participating in the BINGO game review, however, encountered each sentence multiple times – as many as six depending on the

length of each individual game and how many games were played within the time allotted. In light of this, the researcher makes the following recommendations.

Recommendations

The researcher believes that this study could easily be expanded in a few areas, which would cause the implications of the results to be much more far-reaching. It could be expanded to any age group or subject area. Social studies was chosen for this study because of research that points to the need for a high vocabulary in order to understand most social studies texts. This is also the case in science classes. Yet the reviews could be of use in language arts and math classrooms as well. Also, future research could be done in varying social and economic classes so as to apply the results to a more diverse population.

It has been previously mentioned that the higher test scores of students using the BINGO review may partly be contributed to the higher degree of reinforcement received in that review method as opposed to the worksheet review. Concerning this difference in amount of reinforcement, this research could be duplicated but with some changes so that both groups might have the same amount of experience with each vocabulary word. The worksheet could be modified so that the students encountered each word more than just twice – as the students would in the BINGO review. Each worksheet could consist of forty-eight fill-in-the-blank sentences as opposed to just sixteen. Subsequently, the words would only be repeated four times each in the BINGO review session.

In regard to student response to the two different review methods, the researcher found that the students, in general, were much more motivated and interested in the

BINGO review than the worksheet review even though this is not reflected in the test scores because they are very similar. Students in the experimental group would frequently ask, "Are we playing BINGO today?" If answered in the affirmative they were instantly very excited. The time when this was seen most clearly was when the first two-week period ended, and the groups were switched. Those who had to begin doing the worksheet were disappointed that they weren't playing BINGO. However, those who were told they would begin playing a game instead of completing a worksheet were very pleased. The competitive nature of the game also added to the students' fun. Future researchers might consider conducting an attitudinal survey at the beginning and end of each period in order to measure this.

Perhaps the recommendation most relevant to the study of these particular review methods concerns long-term memory. Future researchers could easily test how effective each review method was in helping the students retain the words in their long-term memory by testing them again a few weeks after the initial post-test. This researcher is of the opinion that the modified BINGO review game would prove much more effective in this area mainly because of the repetition of the words.

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APPENDICES

APPENDIX A

KNOX COUNTY SCHOOLS
ANDREW JOHNSON BUILDING

Dr. Charles Q. Lindsey, Superintendent

September 26, 2002

Jenney Klepper
JBC Box 777-604
Knoxville, TN 37998

Dear Ms. Klepper:

You are granted permission to contact appropriate building-level administrators concerning the conduct of your proposed research study entitled, "A comparison of fouth grade students' testing scores between independent worksheet reviews and a BINGO game review." In the Knox County schools final approval of any research study is contingent upon acceptance by the principal(s) at the site(s) where the study will be conducted. Include a copy of this permission form when seeking approval from the principal(s).

In all research studies names of individuals, groups, or schools may not appear in the text of the study unless specific permission has been granted through this office. The principal researcher is required to furnish this office with one copy of the completed research document.

Good luck with your study. Do not hesitate to contact me if you need further assistance or clarification.

Yours truly,

Mike S. Winstead, Ph.D.
Coordinator of Research and Evaluation
Phone: (865) 594-1740
Fax: (865) 594-1709

Project No. 110

P.O. Box 2188 • 912 South Gay Street • Knoxville, Tennessee 37901-2188 • Telephone (865) 594-1800

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APPENDIX B

Dear parents:

This year I have been privileged to intern in your child's class under a master teacher, Mrs. Alice Watts. As part of the requirements for me to earn a Master's Degree, I have had to conduct an action research project within the classroom. Besides the value of me learning such a skill, this study, and others like it, will be used to further enhance education.

For four weeks in Social Studies, the students learned many vocabulary words. We then reviewed the words using either a BINGO game review or a worksheet review. They were tested on these words after a certain amount of time. I then compared the results to see whether there was any difference in test scores according to which review they had participated in. (For those of you who are curious, there was no significant difference in test scores. ☺) These scores were included in their Social Studies grades, just as was all other work that they completed throughout the year.

I would like you to be aware that your child's test scores, along with the other students', were included in this project. You may be assured that his/her name is never mentioned in the study; in fact, there are no references to any specific information regarding the location of the study or subjects involved.

Thank you for your contributions to your child's education! If you have any questions or concerns, please feel free to contact me here at the school.

Miss Klepper
Intern

APPENDIX C

Name: _____

Week 1 Vocabulary Review

frontier	expel	permanent	charter	cash crop
churn	geography	barn-raising	militia	colony
settlers	Puritans	religion	classified	debtors
missionary				

1. Some settlers moved farther west to where there weren't any towns or cities. This was called the _____ and it was a difficult place to live.
2. The colonists had to make everything they needed by themselves; for example, they used a _____ to make butter.
3. On the frontier, it was faster to do some big jobs with neighbors. Settlers often got together for a _____ where they worked together to build a special building in one day.
4. The _____ was a volunteer army in the colonies.
5. The study of the surface of the earth is called _____.
6. A settlement ruled by a country far away is called a _____.
7. The people who came to a new place in order to live there and build homes and towns were called _____.
8. James Oglethorpe had a plan to bring over _____, or people who were in jail for owing money, from England to settle the new colony of Georgia.

9. When you have a lot of information, it makes it easier if it is sorted, or_____.

10. Some colonies, such as Virginia and Georgia, grew items such as tobacco in order to sell it, not to use it all for themselves. We call these things they grew _____.

11. In order to form a new colony, the colonists had to get permission from the King of England. He gave them a _____, or a document saying it was okay.

12. People's belief about God or gods is called their _____.

13. This group of people, the _____, left England to form their own colony because they wanted to have a more 'pure' religion.

14. Sometimes if the people in the colony didn't like what one of their members was doing or saying, they would _____ him, that is, they would make him leave.

15. The first _____ colony in the Americas was St. Augustine, Florida. It still exists today.

16. A _____ is a person who goes to another place in order to get the people there to believe what they do; or, to spread their religion.

APPENDIX D

Vocabulary Test 1

Section 1

_____ Parliament

_____ tomb

_____ rights

_____ militia

_____ industry

_____ debtors

_____ correspondence

_____ missionary

_____ cash crop

_____ memorial

_____ Loyalists

_____ congress

_____ indentured servant

_____ freedom

_____ taxes

_____ expel

Section 2

_____ barn-raising

_____ frontier

_____ classified

_____ colony

_____ churn

_____ supply & demand

_____ religion

_____ trade

_____charter

_____ permanent

_____ settlers

_____ representative

_____ democracy

_____ liberty

_____ Puritans

_____ geography

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